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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,405	01/16/2002	Minoru Aoyama	2002_0008A	2075

513 7590 07/28/2003

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 07/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,405

Applicant(s)

AOYAMA, MINORU

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I (claims 1-14) in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 05/21/02 was considered by the examiner.

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either on an application data sheet or supplemental oath or declaration. *It is noted that applicant has not identify the city of residence.*

Drawings

5. Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 10, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Stoklosa et al 4920019.

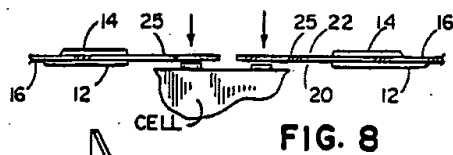
The instant application is directed to an assembled battery unit wherein the disclosed inventive concept comprises the specific battery holding arrangement. Other limitations include the circuit board; the slits and ribs; the lead plates; the thin battery cells; the holding plate area; the soldered lead plates; the adhesive and the lead plate arrangement; the lithium polymer battery and the common circuit board-holding plate structure.

With reference to claims 1-2:

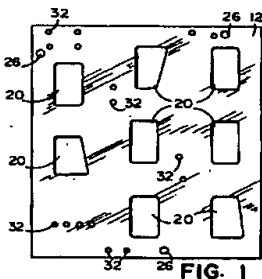
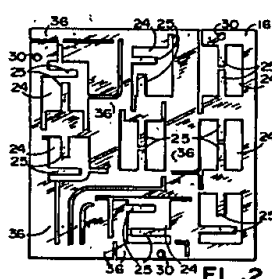
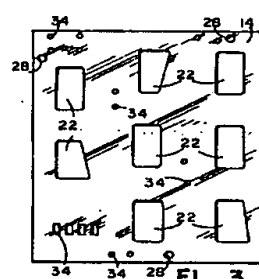
Stoklosa et al disclose a battery pack assembly having a circuit board (TITLE) wherein the battery pack is made by grouping a plurality of cells, positioning a common circuit board adjacent terminals of the cells (COL 1, lines 9-15). The common circuit board is positioned

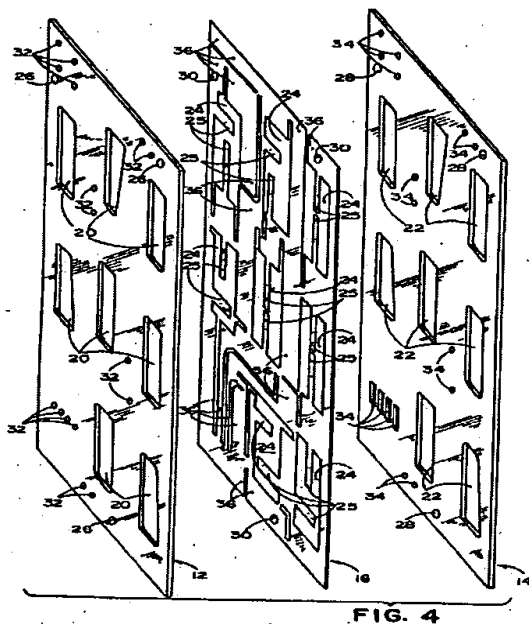
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adjacent terminals of the cells and a lead element is soldered to each terminal and to a portion of the circuit board (COL 1, lines 9-15). Each cell must be individually pretabbed, it must have two conductive leads attached by soldering, one from the positive terminal and one from the negative terminal (COL 1, lines 14-18). The completed laminated circuit board is employed to form a battery pack assembly by combining it with a series of eight galvanic cells or batteries. The plurality of cells are arranged in a pattern or grouping such that when the circuit board is placed thereon, each pair of tabs 25 overlies the respective negative and positive terminals or posts of the battery adjacent thereto as illustratively depicted in **Figure 8** below. Then, by applying to the tabs a deflecting biasing force, the tabs will be bent slightly to engage the battery terminals and secured to the battery terminals by welding to physically secure them to each other (COL 4, lines 37-50).

**FIG. 8**

Stoklosa et al disclose that the circuit board includes at least one, and preferably two pre-perforated insulator sheets and a pre-perforated metal layer laminated between the insulator sheets in sandwich fashion (COL 1, lines 35-38). Accordingly, the laminated circuit board 10 is formed of lower insulation sheet 12 and upper insulation sheet 14 and an intermediate metal foil layer 16 therebetween (COL 2, lines 26-35).

**FIG. 1****FIG. 2****FIG. 3**



Figures 1, 2, 3 above depict three layer component to be combined wherein the layers as combined are illustrated in Figure 4 above.

It is apparent from Figures 1-4 that clearance openings 20 are of a size and configuration to fit over the top of the terminals of a series of galvanic cells or batteries, in this case eight in number. Thus, there are eight openings 20 generally rectangular in configuration and large enough to extend around the periphery of the two terminals, positive and negative, of each battery (COL 2, line 67 to COL 3, line 5). Openings 22 in the upper insulation sheet 14 and opening 24 in the intermediate metal foil layer 16 are provided corresponding in number and location to openings 20 in the lower insulation sheet 12 (COL 3, lines 41-45).

Therefore, the eight openings 20, 22, 24 in respective sheets 12, 14 and 16 hold the battery cells. It is also noted that one of either the lower insulation sheet 12 or the upper insulation sheet 16 provides a configuration to hold or retain cells, thus, they act acts as the holding plate for holding the cells. Hence, the examiner has interpreted that one of the two

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insulation sheets serves as a holding plate per se. In addition, a common circuit board is positioned adjacent the cell terminals, wherein a lead element is connected to each terminal and to a portion of the circuit board.

With reference to claim 3:

Stoklosa et al disclose that other electrical components can be electrically connected to the circuit portions of the metal layer by extending connector elements through orifices 32 and pressing them through orifices 36 to form a friction fit with the metal layer (COL 4, lines 52-57). The lower insulation sheet 12 is formed with a series of alignment holes 26, a set of connection orifices 32 (COL 2, lines 63-66). These holes coincide with two or more like holes 28 in sheet 14, located in the same pattern and of the same size. When the two sheets are placed one upon the other, the three holes in each sheet coincide to receive alignment pins. These pins can be used to cause these sheets to be in alignment. Alternatively, two or more protrusions could be formed into the insulation sheets to fit into like positioned holed in the intermediate metal layer for alignment and, if desired, securement therewith (COL 3, lines 13-23). Stoklosa et al also disclose that a third set of connecting orifices is provided in both sheets, these openings are coincident with the lower sheet 12 and upper sheet 14. The purpose of these orifices is to allow electrical connection between the metal foil and overlying components in the battery pack to be assembled. This can be done by extending a connecting member such as a wire lead of an electronic component, through the metal (COL 3, lines 24-36). *Thus, the slit has a positioning rib provided on the circuit board housing (insulation sheets and metal foil layer) where the assembled battery units is incorporated.*

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With reference to claim 10:

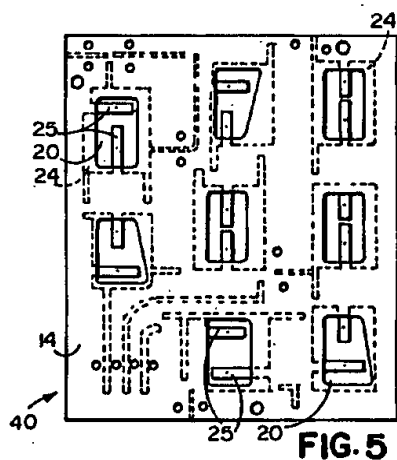
Each cell must be individually pretabbed, it must have two conductive leads attached by soldering, one from the positive terminal and one from the negative terminal (COL 1, lines 14-18). The common circuit board is positioned adjacent terminals of the cells and a lead element is soldered to each terminal and to a portion of the circuit board (COL 1, lines 9-15).

Regarding claim 12:

The plurality of cells are arranged in a pattern or grouping such that when the circuit board is placed thereon, each pair of tabs 25 overlies the respective negative and positive terminals or posts of the battery adjacent thereto as illustratively depicted in **Figure 8** above. *It is apparent from Figures 2 and 4 that the positive lead plates and negative lead of at least two (2) adjacent cells are arranged alternatively as positive lead plates and negative lead plates.*

With reference to claim 14:

Stoklosa et al disclose that the three components 12, 14, 16 are then assembled together to laminate the components. This may be done by adhesively coating to bond the three layers into one integral structure 40 as depicted in **Figure 5** below.



Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

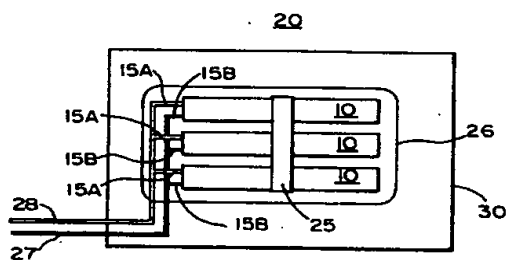
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4-8, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoklosa et al 4920019 as applied to claims 1-3 above, and further in view of Hope et al 5422200.

Stoklosa et al is applied, argued and incorporated herein for the reasons above. However, Stoklosa et al do not disclose the specific lead plate configuration; the thin battery cells; the adhesive; and the lithium-polymer batteries.

With respect to claim 4:

Hope et al disclose a battery packaging construction for multiple cell alkali metal batteries comprising a plurality of flat battery cells, which have leads extending therefrom (ABSTRACT). **Figure 2** below shows a battery which is constructed of a plurality of cells 10 with leads 15A and 15B (COL 3, lines 7-12/ COL 2, lines 56-58). *It is apparent from Figure 2 that the leads 15A and 15B extend from the battery surface in a parallel arrangement.*



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On the matter of claims 5-8:

Hope et al disclose the battery packaging construction has a plurality of flat battery cells (ABSTRACT/ COL 2, lines 56-58). *It is noted that flat battery are also known in the art as thin flat battery because the battery has little depth with respect to the width and depth. .*

Regarding claim 11:

Hope et al teach that the battery 20 which is constructed of a plurality of cells 10 are electrically connected together by electrically conductive tape or adhesive, or adhesive transfer tape of well known type; or the cell stack held together with a band of tape of by an adhesive layer between them (COL 3, lines 11-17).

Regarding claim 13:

It is taught that the single battery cell is of the lithium-polymer type (COL 2, lines 50-53).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to make the specific lead plate configuration of Hope et al in the assembled battery of Stoklosa et al as Hope et al teach that leads extending from the single cell allow the single cell itself to have the leads electrically connected in series or parallel to terminals. Thus, the specific lead plate configuration as claimed would provide a battery package construction exhibiting satisfactory electrical connection and electrically connecting leads from the multiple cells to an external electrical current carrying member of the battery so that generated electrical energy be drawn and directed to an energy powered device. *Additionally, it has been held that changes in shape are obvious In re Dailey 149 USPQ 47 (CCPA 1966).*

With respect to the thin battery cells, it would have been obvious to one skilled in the art at the time the invention was made to use the flat (thin) battery cells of Hope et al in the

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assembled battery of Stoklosa et al as Hope et al teach that by using flat battery cells in the battery packaging construction for multicelled batteries a lightweight product (battery assembly) is obtained. Further, thin battery cells are also desirable in the multicelled battery field because thin battery cells provide battery packaging construction which can accommodate a large numbers of cells in a compact durable product. *Additionally, it has been held that making articles adjustable is obvious In re Stevens 101 USPQ 284 (CCPA 1954).*

As to the adhesive, it would have been obvious to one skilled in the art at the time the invention was made to use adhesive of Hope et al to fix the battery cells of Stoklosa et al because Hope et al teach that cells can be electrically connected together in series or parallel by electrically conductive tape or adhesive, or adhesive transfer tape of well known type. Accordingly, cells can be held together with at least one band of tape or by an adhesive layer between them. *Hope et al's teaching is also consistent with the disclosure of Stoklosa et al that components can be assembled together by coating the mating surfaces thereof with a suitable adhesive to bond the components into one integral structure. Thus, an adhesive securing feature can be employed in the assembled battery unit to protect the cells from accidentally moving or displacing.*

As far as the lithium-polymer batteries, it would have been obvious to one skilled in the art at the time the invention was made to use the lithium-polymer batteries of Hope et al in the assembled battery of Stoklosa et al because Hope et al teach his invention provide battery packaging construction for multicelled batteries which is particularly suitable for alkali metal batteries. Accordingly, the lithium-polymer type cell of Hopes et al provides a durable

multicelled battery unit. *Thus, Hope et al directly teach the use of a lithium-polymer battery provides a durable multicell battery.*

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stoklosa et al 4920019 as applied to claim 1 above, and further in view of the WO 00/41253 publication.

Stoklosa et al is applied, argued and incorporated herein for the reasons above. In addition, Stoklosa et al do not disclose the holding plate having an area approximately equal to an area of the plurality of battery cells.

The WO'253 publication discloses an arrangement of electrochemical cells and circuit board wherein preferably the cells and the circuit board has the same lengths and widths (page 22, lines 8-9 or CLAIM 2/ ABSTRACT). *Thus, since the planar dimension (length and width) of both the cells and the circuit board are the same, the area of the circuit board plate is approximately equal to the area of the plurality of cells.*

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to make the holding plate having an area approximately equal to an area of the plurality of battery cells of the WO'253 publication in the assembled battery of Stoklosa et al as the WO'253 publication teaches that the size and shape of the circuit board can be freely selected in accordance with the size and shape of the cells provided that the circuitry on the circuit board be protected thereby. Thus, this freedom of size and shape design means that the cell unit can designed to fit with the electrical device in which it is to be used, rather than the intended electrical device being design around the cell. *Since the holding plate of Stoklosa et al is part of the circuit board itself, the disclosure of the WO'253 provides a clear motivation to those of ordinary skill in the art to size and adjust such circuit board component of Stoklosa et al*

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in accordance with the size and shape of the battery cell. Furthermore, the teaching of the WO'253 is consistent with the disclosure of Stoklosa et al that various other geometrical configuration may be formed into the metal layer representing the circuit board to enable postpunching operation to be minimized, yet taking care to cause the metal foil to remain in one integral mechanical piece for effective manipulation and alignment with the insulation sheet. In addition, it has been held that changes in size/proportion of an article are obvious In re Rose 105 USPQ 237 (CCPA 1955), and In re Gardner 225 USPQ 232 (1984).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
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